

WHAT IS CLAIMED IS:

1                   1. A system for deskewing serial data received at a plurality of independent  
2 devices, each device coupled to receive a single serial XAUI lane, with a Master device  
3 coupled to a selected XAUI lane and slave devices coupled to remaining XAUI lanes, the  
4 system comprising:

5                   a two-wire bus, having a first wire and a second wire;

6                   an alignment character detecting unit included in each device, with the alignment  
7 character detecting unit for indicating when an alignment character is detected in serial data  
8 received at the device;

9                   an Align\_Character signal assertion unit, included in the Master device, and coupled  
10 to the alignment character detecting unit and to the first wire, for asserting the  
11 Align\_Character signal when an alignment character is detected in serial data received from  
12 the selected XAUI lane; and

13                  a deskew unit in each slave device, coupled to the first wire, the second wire, and to  
14 the alignment character detecting unit, for decoding the Align\_Char signal to determine  
15 whether its received data is skewed relative to data received at the master, and if the data is  
16 skewed, slipping its datapath to deskew the data and asserting an Error\_Ind signal on the  
17 second wire.  
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1                   2. The system of claim 1 wherein each device runs on an internal device clock  
2 at twice the speed of the bus clock and with the internal device clock and bus clock being in  
3 phase and with a bus clock cycle comprising a first phase aligned with a first device clock  
4 cycle and a second phase aligned with a second device clock cycle, the system further  
5 comprising:

6                   an Align\_Character signal encoder for asserting the Align\_Character signal for  
7 one bus cycle if the alignment character is detected during the first device clock cycle and for  
8 asserting the Align\_Character signal for two bus cycles if the alignment character is detected  
9 during the second device clock cycle.

1                   3. A system for deskewing serial data received at a plurality of independent  
2 devices, each device for being coupled to receive a single serial XAUI lane, each device  
3 including:

4                   an Align\_Char port and an Error\_Ind port;

an alignment character detecting unit, with the alignment character detecting unit for indicating when an alignment character is detected in serial data received at the device;

an Align\_Character signal assertion unit, coupled to the alignment character detecting unit and to the Align\_Char output port, for asserting the Align\_Character signal at the Align\_Character port when an alignment character is detected in serial data received from the single XAUI lane and the Align\_Character is output enabled;

a deskew unit, coupled to the Align\_Character port, the Error\_Ind port, and to the alignment character detecting unit, for decoding an Align\_Char signal received at the Align\_Character port to determine whether its received data is skewed relative to data received at a device asserting the Align\_Character signal, and if the data is skewed, slipping its datapath to deskew the data and asserting an Error\_Ind signal at the Error\_Ind port.

4. A method for deskewing serial data received at a plurality of independent devices, each device for being coupled to receive a single serial XAUI lane, the method including the acts of:

at a Master device coupled to the selected XAUI lane:

asserting an Align\_Char signal during a first bus clock cycle when the alignment character is detected;

at a Slave device coupled to another XAUI lane:

receiving the Align\_Char signal during the first bus clock signal;

determining whether its received data is skewed relative to the data

received at the Master device;

if the data is skewed:

slipping its datapath to align its received data with master; and

asserting an Error\_Ind signal.

5. A system for deskewing serial data received at a plurality of independent devices, each device for being coupled to receive a single serial XAUI lane, the system comprising:

at a Master device coupled to the selected XAUI lane:

means for asserting an Align\_Char signal during a first bus clock cycle when the alignment character is detected;

at a Slave device coupled to another XAUI lane:

means for receiving the Align\_Char signal during the first bus clock signal;

means for determining whether its received data is skewed relative to the data received at the Master device;

means for slipping its datapath to align its received data with master if the data is skewed; and

means for asserting an Error\_Ind signal if the data is skewed.

6. A method for deskewing serial data received at a plurality of independent devices, each device for being coupled to receive a single serial XAUI lane, the method including the acts, performed at a device, of:

asserting an Align\_Char signal during a first bus clock cycle when the alignment character is detected;

receiving and decoding an Align\_Char signal received at the Align\_Character port;

determining whether its received data is skewed relative to data received at a device asserting the Align\_Character signal;

if the data is skewed:

slipping its datapath to align its received data with master; and

asserting an Error\_Ind signal.

7. The method of claim 6, with a device including a deskew state machine, the method further comprising the acts of:

if an Error\_Ind signal is received:

resetting the deskew state machine so that all deskew state machines on each device are synchronized.

8. A system for deskewing serial data received at a plurality of independent devices, each device for being coupled to receive a single serial XAUI lane and with each device including an Align\_Char port and an Error\_Ind port, with a device comprising

means for asserting an Align\_Char signal when the alignment character is detected;

means for receiving and decoding an Align\_Char signal received at the Align\_Character port;

8 means for determining whether its received data is skewed relative to data  
9 received at a device asserting the Align\_Character signal;  
10 means for slipping its datapath to align its received data with master if  
11 the data is skewed; and  
12 means for asserting an Error\_Ind signal at the Error\_Ind port if the data is  
13 skewed.

1 9. The system of claim 8, with a device including a deskew state machine, the  
2 device further comprising:  
3 means for resetting the deskew state machine so that all deskew state machines  
4 on each device are synchronized if an Error\_Ind signal is received the Error\_Ind port.